



DD 21

Advanced Gun System

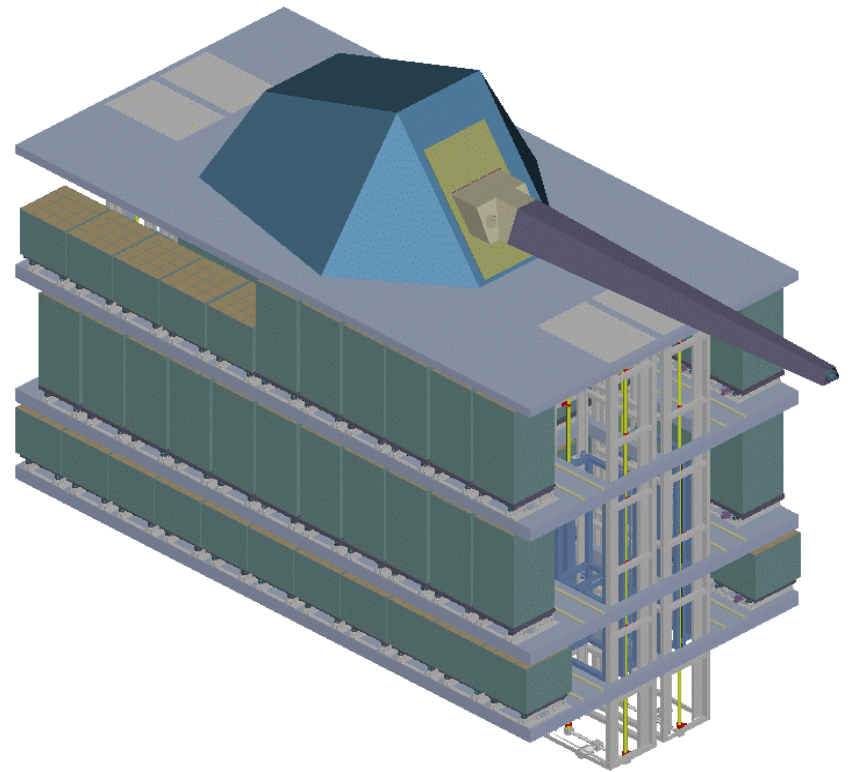
Jim Schoppenhorst

(612) 572-4784

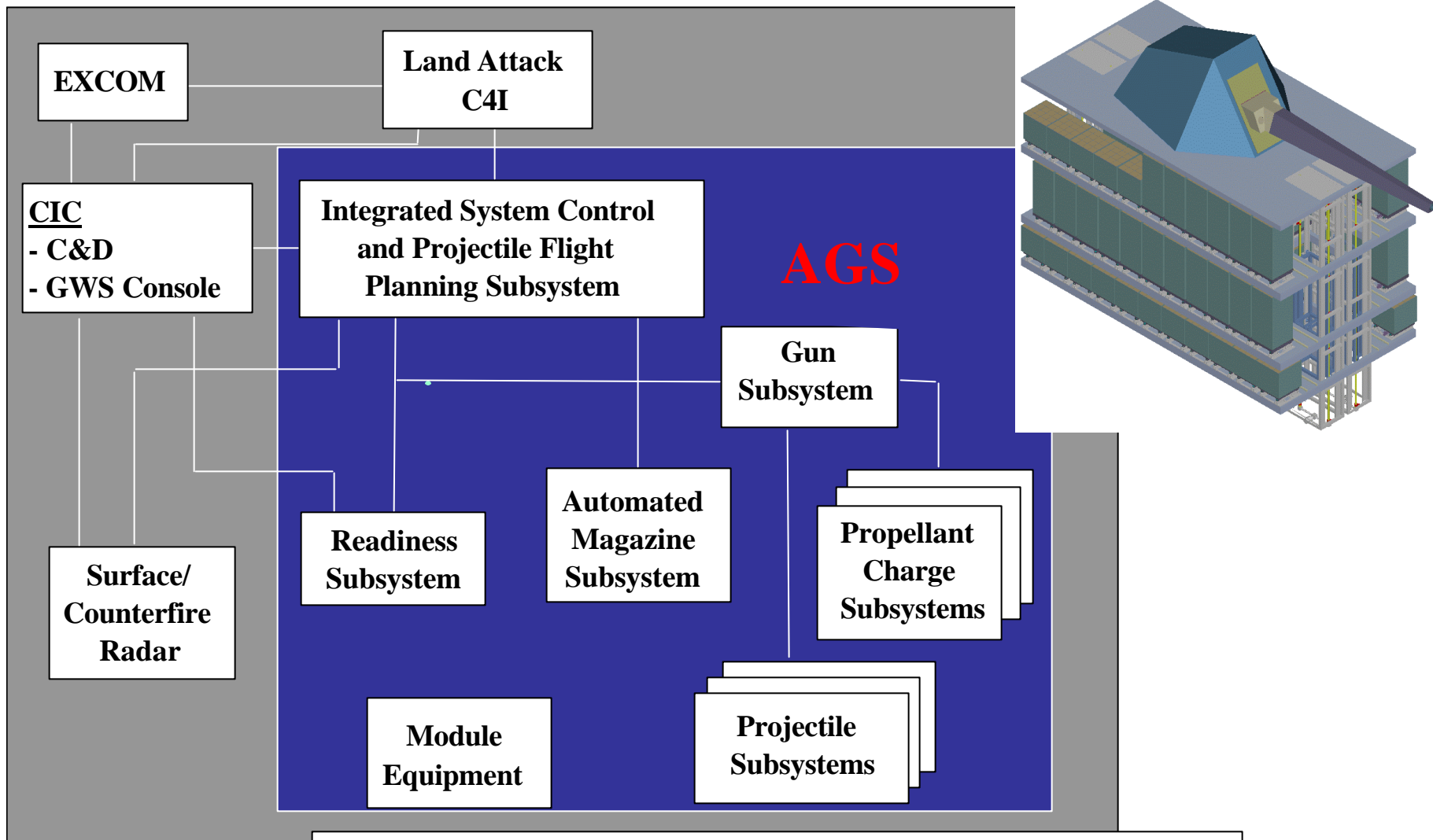
jim_schoppenhorst@udlp.com

AGS System Characteristics & Capabilities

- **155mm**
- **62 caliber barrel**
- **30-35 MJ muzzle energy**
- **12 rounds/min firing rate (max and sustained)**
- **Fully stabilized mount**
- **600-750+ round automated magazine**
- **Guided and ballistic projectile capability**
- **100 NM range**



AGS System Block Diagram



System optimization requires concurrent development of all AGS elements

Mod 4 / Crusader Leverage

Mk 45 MOD 4



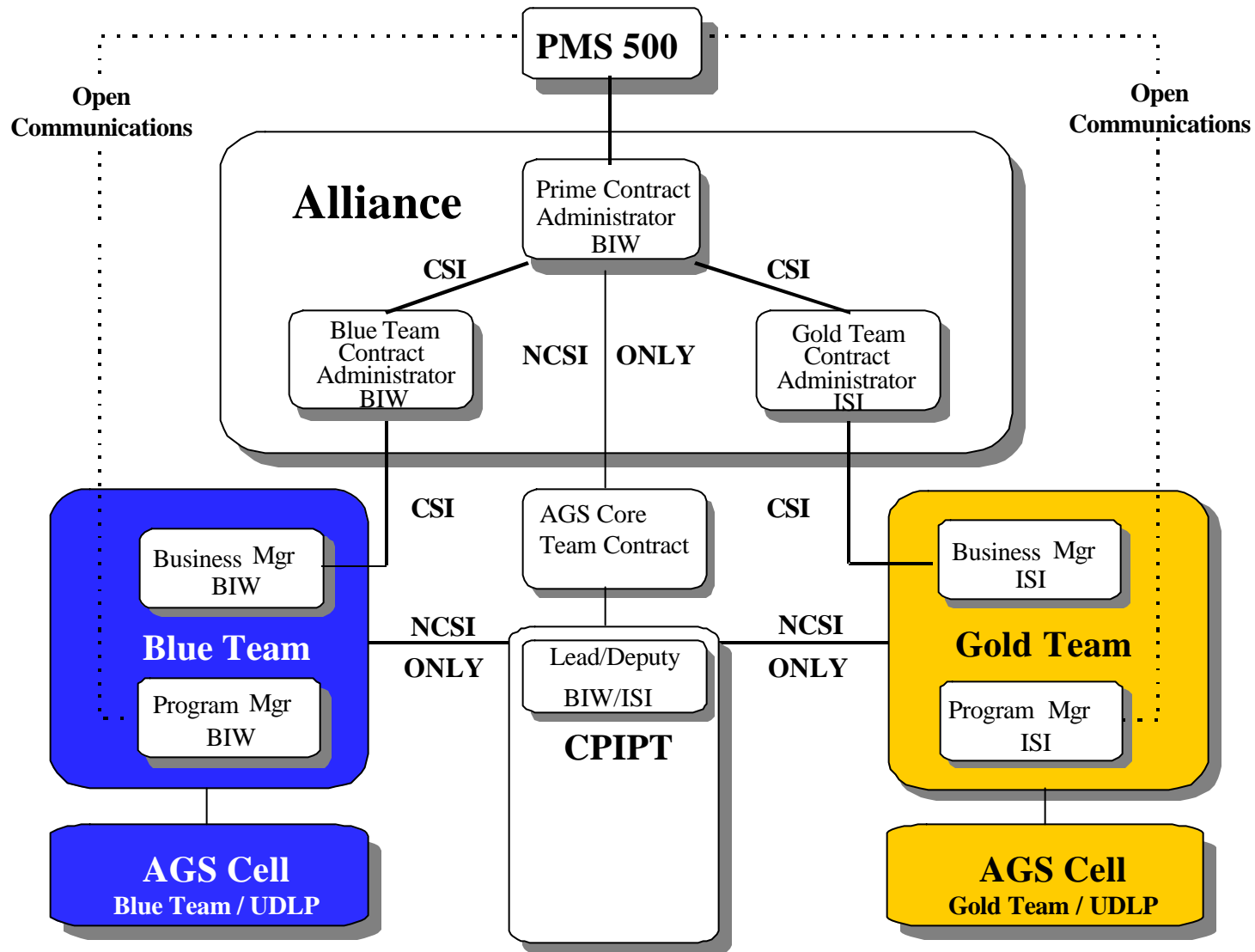
- High Performance Gun Design
 - Recoil Design
 - Sliding Breech Design
 - Integrated GPS and Projectile Initialization
 - Gun / ERGM Interface
 - Magazine Load Assist
 - Digital Fire Control Interface
-

Crusader

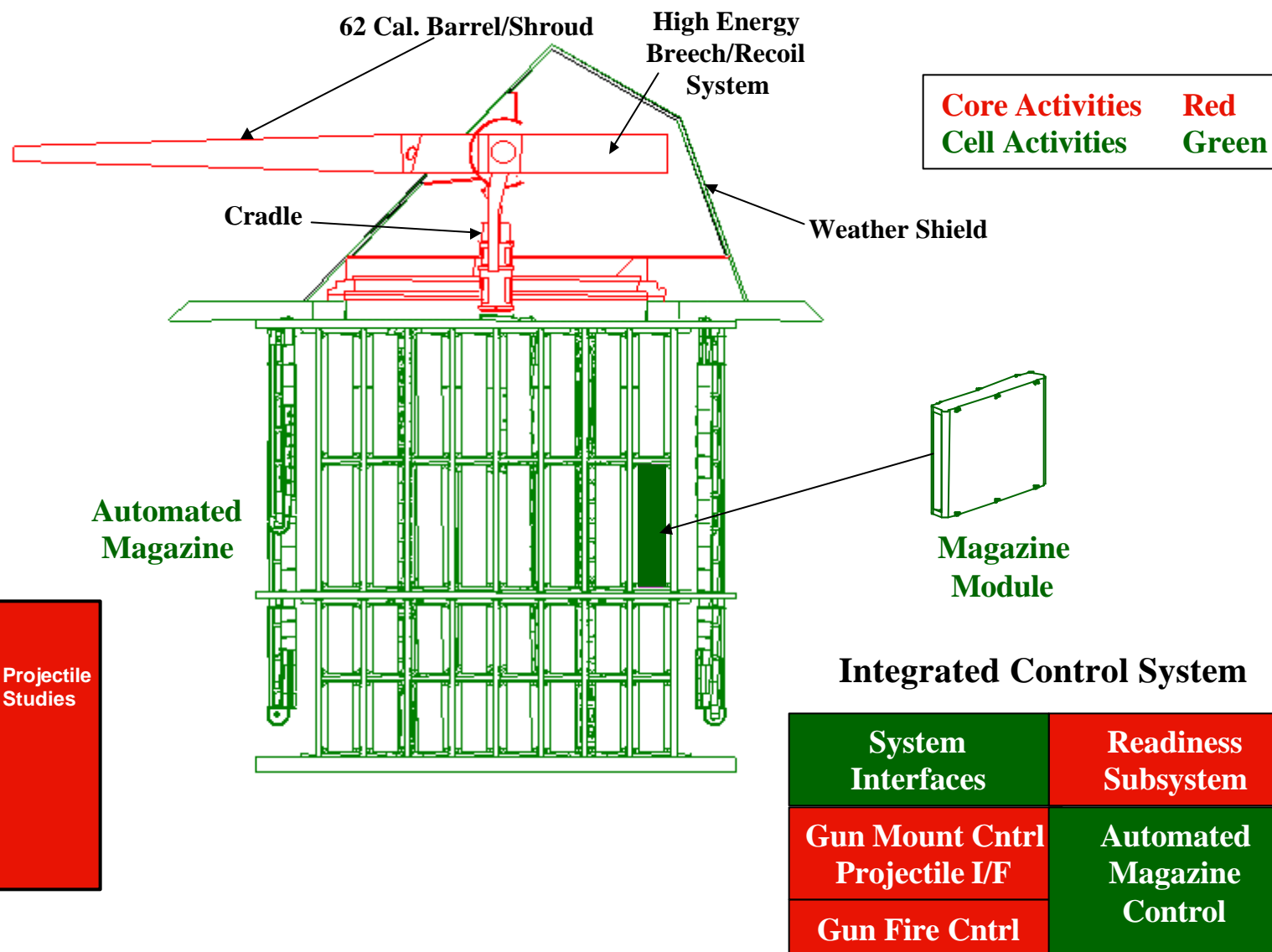


- Prime Contractor / System Integrator
- Automated magazine
- Barrel Cooling
- MACs Charges
- Controls and Actuators
- Simulation Based Design & Virtual Prototyping
- CAIV Methodology

DD 21 Organization



AGS Core and Cell Worksplit

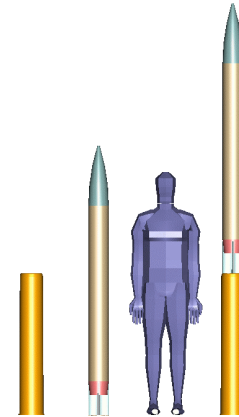


Gun Concepts / Trades

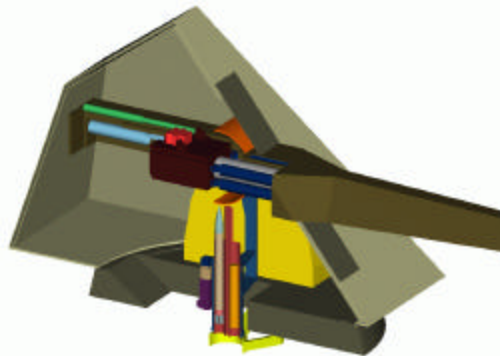
All AGS Gun Concepts Feature

- Unmanned operation
- Fully automatic loading and firing
- Fully stabilized pointing to optimize projectile range and performance
- COTS and COTS-derivative components
- Electric drives / no hydraulics

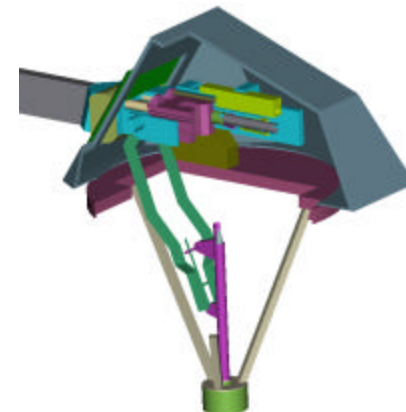
Guided Projectile/ Propelling Charge



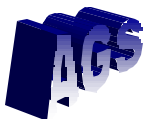
Twin-Cell Cradle Gun Mount



Articulated-Cradle Gun Mount

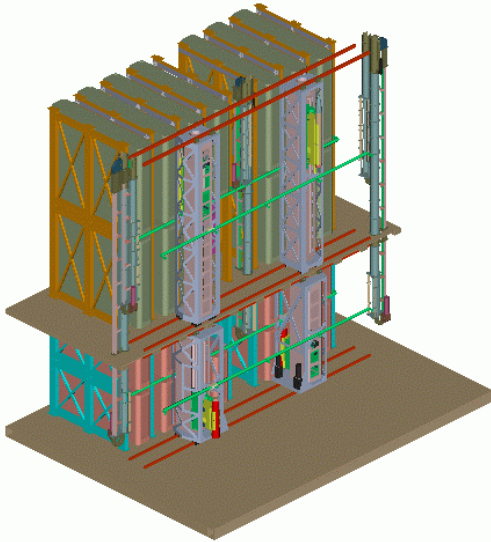


United Defense

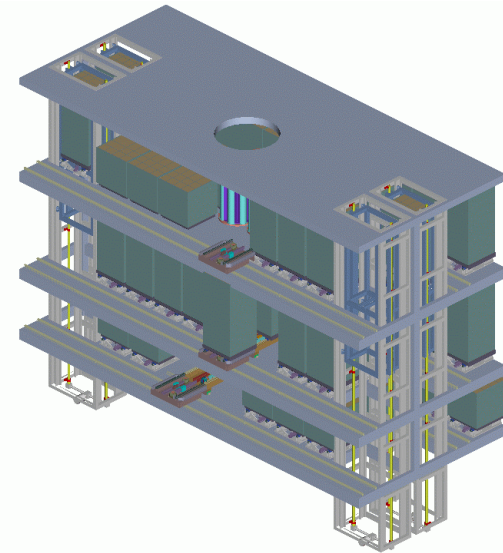


Magazine Concepts / Trades

- Unmanned operation
- Fully automated ammunition handling and inventory management
- Very low maintenance (sealed bearings, modular subassemblies)
- COTS and COTS-derivative components
- Electric drives / no hydraulics
- Multi-mission/multi-engagement capable



Ready Service Ring Magazine



Palletized Magazine

Projectile Concepts / Trades



**EX 171
5 inch ERGM**



**XM982
DPICM**



**155mm AGS
Land Attack**



**Battle
Damage
Assessment**

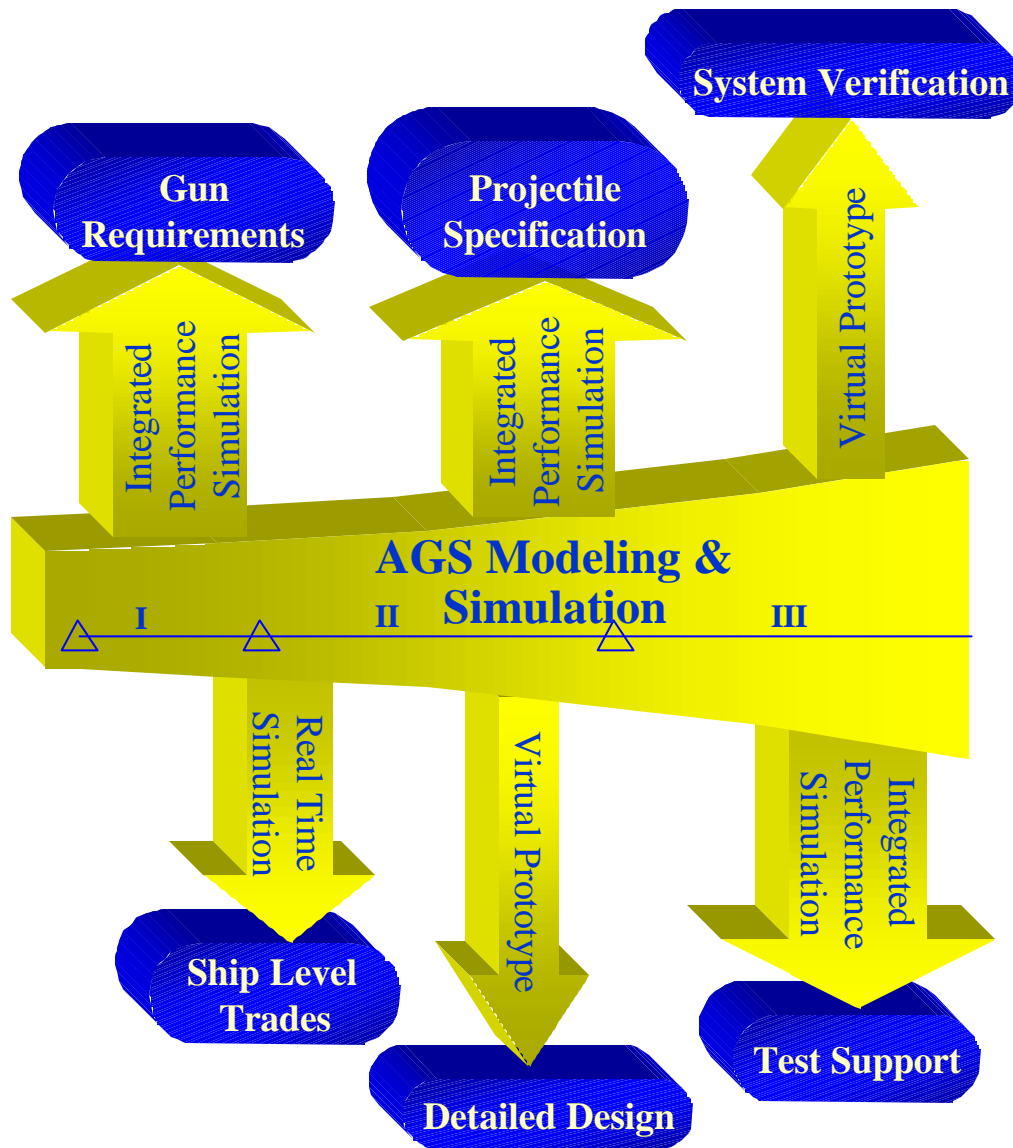
Projectile Concept Features:

- **Airframe, Guidance & Control leverage 5 inch ERGM and Army XM 982**
- **Multiple Warhead Types to meet mission needs.**
- **Terminal Seeker for Surface Round**
- **Upgraded Rocket Motor for increased Range**

Projectile Trades:

- **Range/Lethality Trade**
- **Error Budget Analysis**
- **Responsiveness Analysis**
- **Cost/Performance Trades**
- **Propulsion Trades**

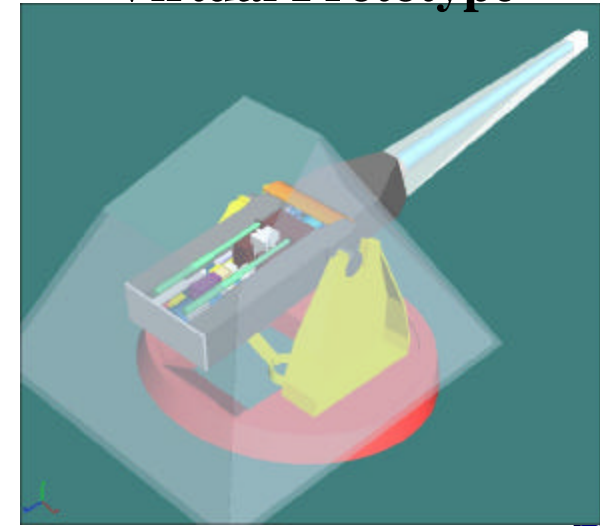
AGS Modeling & Simulation



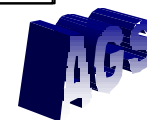
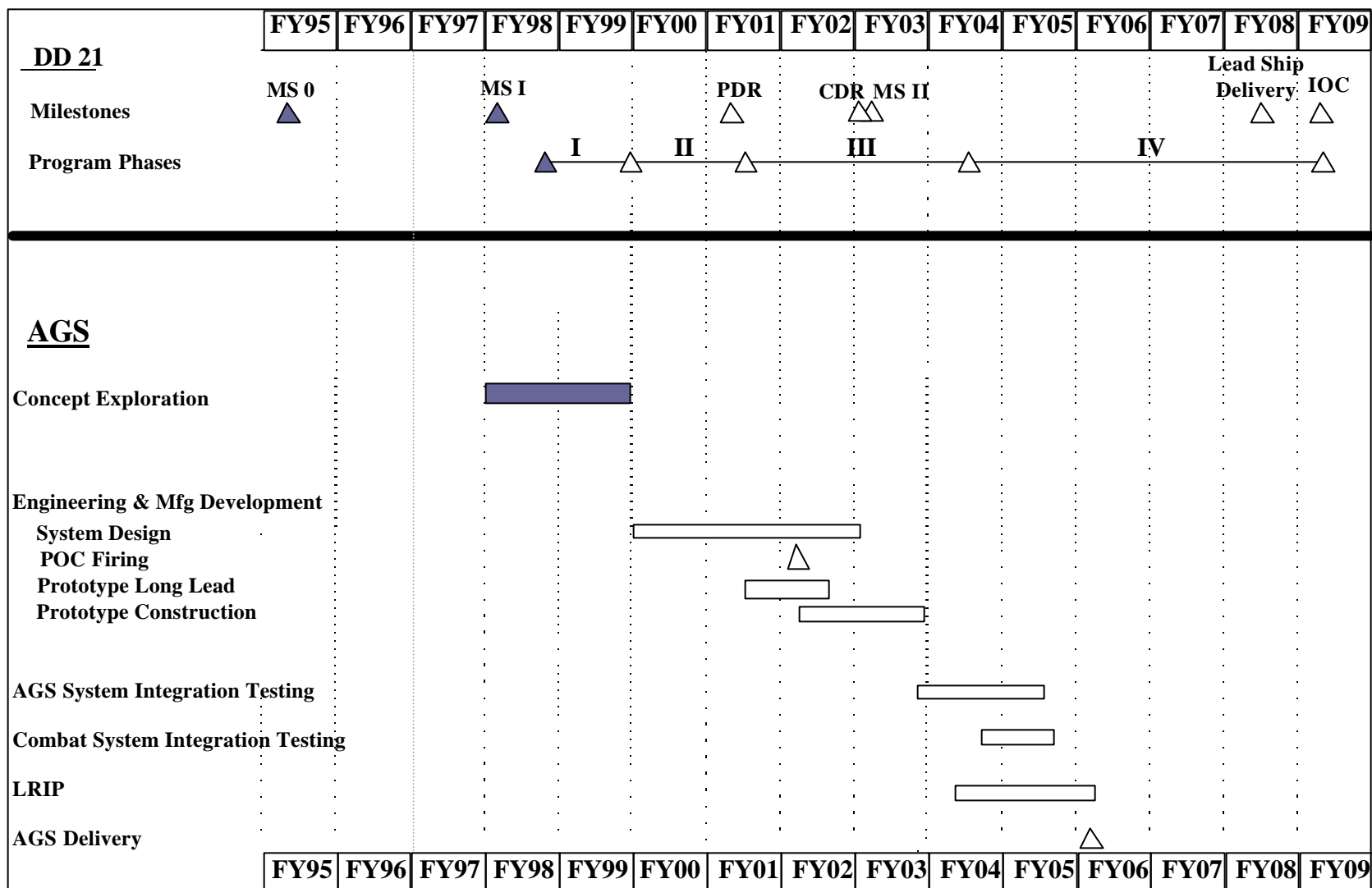
Visual Integration Lab



Virtual Prototype



DD 21 / AGS Schedule



Conclusions

- **AGS incorporates major technical advancement**
- **AGS development is integrated with Blue and Gold Teams**
- **Integrated system development approach insures performance optimization**

